

FIG. 1

	Amine	Catalyst	% Yield ^b
1 (NH ₂	Sc(OTf) ₃	97
' [Ti(NMe ₂) ₄	99 (80)
2 .		Sc(OTf) ₃	98 (79)
	NH ₂	Ti(NMe ₂) ₄	88
3		Sc(OTf) ₃	68
- /	NH ₂	Ti(NMe ₂) ₄	98 (84 ^c)
4	0 •	Sc(OTf) ₃	99 (98)
. /	O NH ₂	$Ti(NMe_2)_4$	2

FIG. 2

$$C_6H_{13}$$
 + R'NH₂ Forward C_6H_{13} NHR' + RNH₂

			Amide Ratio (I/II) ^b		
	R	R'	Catalyst	Forward	Reverse
			Sc(OTf) ₃	89/11	6/94
1		CH ₂	Ti(NMe ₂) ₄	92/8	5/95
	-		$Al_2(NMe_2)_6$	50/50	49/51
2	CH ₂ -	CH ₂	Al ₂ (NMe ₂) ₆	46/54	44/56
3	СН	<i>/</i> ^^сн ₇ -	Al ₂ (NMe ₂) ₆	57/43	55/45

FIG. 3

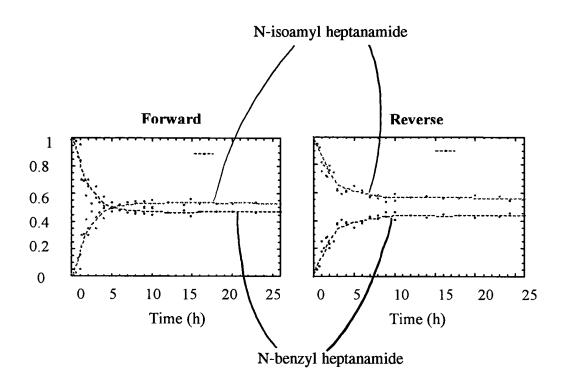


FIG. 4

$$C_{6}H_{13} \underset{\text{III}}{\overset{\wedge}{\text{III}}} + \overset{\wedge}{\overset{\wedge}{\text{NH}_{2}}} \underset{\text{Reverse}}{\overset{\wedge}{\text{Forward}}} C_{6}H_{13} \underset{\text{IV}}{\overset{\circ}{\text{NH}_{2}}} + \overset{\circ}{\overset{\circ}{\text{NH}_{2}}}$$

				Amide Ratio (III/IV) ^b	
	Χ	Χ'	Catalyst	Forward	Reverse
1	Н	CH₃	Sc(OTf) ₃ Ti(NMe ₂) ₄ Al ₂ (NMe ₂) ₆	98/2 42/58 65/35	1/99 42/58 43/57
2	Н	CH₃O	Ti(NMe₂)₄	34/66	32/68
3	CH₃	CH₃O	Ti(NMe ₂) ₄	40/60	41/59

FIG. 5

$$\begin{array}{c|c} & & & \\ &$$

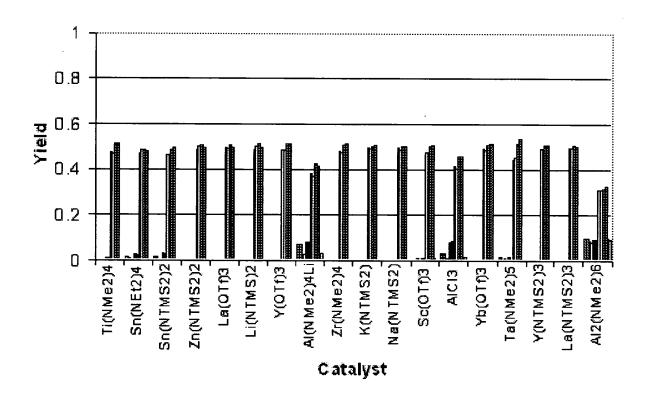


FIG. 6